REMARKS/ARGUMENTS

Claims 1, 3-5 and 7-10 stand in the present application, claims 1 and 5 having

been amended. Applicant notes with appreciation the Examiner's indication of allowable

subject matter in claim 3, but respectfully submits that in view of the above described

claim amendments and the following remarks that all of the claims standing in this case

are in condition for allowance. Accordingly, reconsideration and favorable action is

respectfully requested.

In the Office Action, the Examiner has rejected claims 1, 4 and 9 under 35 U.S.C.

102(b) as being anticipated by a Amalfitano, has rejected claims 5 and 10 under 35

U.S.C. 103(a) as being unpatentable over Amalfitano in view of Otis, and has rejected

claims 7 and 8 under 35 U.S.C. 103(a) as being unpatentable over Amalfitano and Otis

and further in view Chuah. As noted above, it is respectfully submitted that the amended

claims are believed to patentably define over the cited references as will be described in

greater detail below.

The Office Action states that it is unclear whether it is the "ranking" or the

"measuring usage" which is "relative to other users." *See*, Office Action at paragraph 9.

"Ranking" as used in the present claims means arranging the users in order according to

the individual users' measured usage of the resource. Thus the lightest user has the

highest ranking, the heaviest user has the lowest ranking, and the other users are

- 5 -

arranged, in order, in between these extremes. In order to more clearly recite this limitation, Applicant has amended independent claims 1 and 5 as described above. For example, claim 1 has been amended to require "ranking <u>each one of</u> the users currently requiring access according to the measured usage relative to <u>each other</u>." Similar amendments have been made to claim 5. Support for these amendments can be found, inter alia, in the present specification at page 6, lines 14-18.

The amended phrase "relative to each other" makes it more clear that the ranks are relative – there is no absolute definition, for example, a set number of Megabits, which defines what is "heavy" or "light" usage. The lightest user gets top ranking, regardless of how much he has used.

The Examiner asks whether "the other users" includes offline users. The answer is no. Since the claims specify that it is only the users currently requiring access who are ranked, it is only those, and not the offline users, who are included in the ranking.

It should be further noted, that that this is a dynamic system. Because, at any given time, only the users currently requiring access are ranked, at times of high demand, with many users requiring access, a user with a heavy usage record would be ranked quite low. At a time of low demand, when only a few users are seeking access to the

1483453

system, the same user would have a much higher place in the rankings because many of the light users do not currently require access.

The Examiner suggests the phrase "relative to other users" is not needed "[b]ecause when a user is ranked, it is always done relative to other users, unless there are no other users." *See*, Office Action at paragraph 9. However, in the cited prior art, Amalfitano, a counter-example is provided in which the rankings and consequential bandwidth allocations are absolute values. The requirement in the present claims that the rankings are set according to relative usage provides that these rankings, unlike Amalfitano's, will vary according to the number of users currently on line, and their relative patterns of usage. Thus users requiring large volumes of download are only restricted at times when to do so would cause congestion – at quiet times they can get a larger allocation because there are fewer users demanding a share. In the prior art, a user with a given usage pattern will always have the same allocation. In Applicant's invention, the user will move up or down the rankings according to the behavior of the other users, including both their usage patterns and whether they are currently on line.

The Office Action has misapprehended the expression "currently requiring access" in the present claims. *See*, Office Action at paragraph 10. The restriction factor is determined in such a way as to share the resource (i.e., bandwidth) only between those

- 7 -

users who currently require some of it. The Examiner suggests that the requirement that "a restriction factor is applied to each user currently requiring access" allows an arrangement in which the resource (bandwidth) can also be allocated to those users not requesting the resource. However, in the present amended claims clearly no resource (bandwidth) is allocated to users who are not currently requiring access, and if any resource (bandwidth) were to be so allocated it would not be used since these users have, by definition, no current requirement for it. They are not included in the ranking process, nor taken into account in the calculation of the restriction factor, and therefore the share-out of resource does not include any share for them.

The Examiner asserts that claim 1 does not define a process which allocates bandwidth only to users currently connected. First, it should be understood that Applicant use of the term bandwidth in the prior arguments for patentability were in lieu of the actual claim term "resource" – clearly bandwidth is a "resource" in communications. Furthermore, amended claim 1 now more clearly specifies that only those users who are currently connected are considered, both in the ranking process and in the determination of the restriction factor. Consequently the users not currently connected will not be allocated any resource (bandwidth), thereby ensuring that the resource (bandwidth) is only allocated to those users who currently require it. Similarly,

- 8 -

claim 5 only ranks the "connected users" and the restriction factor depends on those rankings – a non-connected user has no ranking and therefore no value for a restriction factor, and therefore cannot have an allocation, since the allocations are calculated according to the restriction factors. Only users having a ranking get a restriction factor, and only connected users get a ranking. In any event, Applicant has amended claim 5 to more clearly refer to "each connected user."

The Examiner's statements at paragraph 11 of the Office Action do not establish that Amalfitano teaches or suggests Applicant's invention as set forth in the present claims in which a ranking process and calculation of a restriction factor proceeds for users currently requiring access. Indeed, the last sentence of the cited paragraph merely establishes that Amalfitano provides some level of resources to lower priority level users. See Amalfitano at page 3, paragraph [0041].

In paragraph 13 of the Office Action, the Examiner asserts that Applicant's argument that "applicant's system relies solely on comparison with other users, and is automatically and periodically adaptable to changes in demand and available capacity" is not defined in the claims. To the contrary, the present claims do indeed require comparison between users (ranking the users according to each other). The automatic adaptation is a consequence of the requirement that only those users currently requiring

- 9 -

access (connected users) are ranked, and that the restriction factor is determined according to the number of users currently requiring access – so the process does indeed automatically adapt to changes in demand.

In rejecting the present claims, the Examiner cites paragraph 8 of Amalfitano. *See,* Office Action at pages 5-6 and 9. The cited passage of Amalfitano clearly states that the user's individual usage records are compared not with each other but with an absolute value – indeed, each user's usage is compared with "their stated amount" (lines 8-15) which implies that the benchmark may vary from one user to another. Thus it would appear that Amalfitano could favor a user who has a high allocation but does not use it all, compared with a user who has a much lower allocation but slightly exceeds it.

Note also that Amalfitano's users are not each given an individual ranking – there are a limited number of priority levels with, in general, different numbers of users at each level. The values p1, p2 (paragraphs [00 55], [0057]) are the percentage of current users at each level. These values would clearly all be equal if each user had its own ranking.

Accordingly, independent claims 1 and 5 and their respective claims patentably define over Amalfitano for all the reasons given above.

The Examiner's comment regarding the rejection of claim 4 is not understood. Present claim 4 requires that the user having made the least usage (the highest ranked

1483453

user) is allocated a restriction factor of unity – i.e., that user and that user alone gets the full allocation. All other users get a lesser allocation as they have a smaller value for the restriction factor. In the claimed embodiment, the restriction factor is determined as the value "alpha raised to the i'th power" where "i" is the user's position in the rank order, the highest ranked user having position "0." *See*, the present specification at page 7. The passage referred to by the Examiner (paragraph [0056] of Amalfitano) refers to an allocation of x=1.08 to each user at one of the levels (the highest). Note again that there is in general more than one such user at a given level, and the Examiner suggests that as the number of levels increases, the value of "x" approaches unity, although there is no mention of such a figure. Indeed, as the value x is a percentage, there is no particular significance to a value of x=1: unity is equal to x=100%. It is also noted that in the example, another value of x is quoted, for the second (and indeed, only other) priority level. That value is 0.27 – clearly, x=1 is neither a maximum nor a minimum value for the values x and y.

Applicant also respectfully submits that it may be instructive to examine Amalfitano's example (paragraphs [0036]-[0059]) in more detail. Allocation to a priority level is, as shown in Figure 2, according to absolute values of usage, not relative to other users. Amalfitano groups all the users into just two or three priority levels, in the specific

- 11 -

examples of paragraphs [0042]-[0059] there are just two, levels, with 90% of users at the higher level. Clearly the users cannot each have their own individual rankings if there are nine times as many users at one level as at another. (It appears from the subsequent calculations that there are in fact 100 users, although Amalfitano does not appear to say so – allocations would be increased or reduced in proportion if the total number of users was not 100.)

Amalfitano then shares the available bandwidth between the users such that users in the higher priority each get a first allocation, and those in the lower priority each get a lower allocation which is a predetermined fraction of the first (y=x/4). The actual values of y and x are chosen such that the allocations to each user sum to the total available resource – in the example, x=1.08% and y=0.27%, so that 90 x 1.08% + 10 x 0.27% = 100%.

Present claim 4 requires that the restriction factor (a factor, dependant on a user's position in the ranking by which a fixed value b(max) is multiplied to give the individual users' allocations) is unity for the highest priority user and, consequently, that the highest priority user is allocated b(max). Thus, Amalfitano clearly does not teach or suggest claim 4 nor does it teach or suggest claims 9 and 10 which require a unique ranking for each (connected) user.
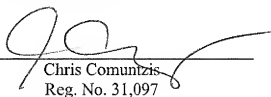
Finally, it is respectfully submitted that since the secondary references of Otis and Chuah do not solve the deficiencies noted above with respect to Amalfitano that the present claims patentably define over the cited references taken singly or in any combination.

Therefore, in view of the amendments and remarks, it is respectfully requested that the application be reconsidered and that all of claims 1, 3-5 and 7-10 standing in the application, and that the case be passed to issue. If there are any other issues remaining which the Examiner believes could be resolved through either a supplemental response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the local telephone exchange indicated below.

Respectfully submitted,

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